L.E. FLETCHER TECHNICAL COMMUNITY COLLEGE
310 Saint Charles Street
Houma, La. 70360

Introductory Physical Science
Syllabus

Course Number: 1200
Course Title: Introductory Physical Science
Credit Hours: 3/0/3 (Lecture/Lab/Total)
Contact Hours: 45

Course Description:

An interdisciplinary approach to the laws and principles of chemistry and physics applied to matter and energy.

Prerequisite: None

Course goals: Students will develop an understanding of:

- Scientific inquiry.
- Mathematics and measurement systems used by the scientific community.
- Properties and changes of properties of matter.
- The language used to describe chemical compounds and their activity.
- The planet Earth and its place in the universe.
- Geology, weather and the factors that affect the shape of the earth.

Course Objectives: Upon the completion of this course students will:

- Develop models and predictions using the relationship between data and explanations.
- Compare alternative explanations and predictions.
- Communicate scientific procedures, information and explanations.
- Demonstrate Safety procedures during scientific investigation.
- Use mathematics and appropriate tools and techniques to gather, analyze, and interpret data.
- Understand that matter is made up of particles called atoms and that atoms of different elements are different.
- Understand the arrangement of the periodic table of elements and make predictions about the activity of elements based on their position in the table.
- Describe the particles that make up atoms.
- Understand the terms mass number and atomic number, and use them to make predictions about the make up of individual atoms.
- Predict the electron configuration of atoms based on their atomic number and position in the periodic table.
- Be able to write the electron dot structure for various atoms.
- Describe the different types of chemical bonding.
- Be able to write the chemical formula for simple compounds and give the name of compounds from their formula.
- Calculate the molecular weight and percent composition of a compound.

- Write and balance the chemical equation for simper reaction.
- Understand the various types of chemical reactions and identify them from a balanced chemical equation.
- Develop an understanding of aqueous solutions.
- Distinguish the difference between acids and bases.
- Distinguish the difference between inorganic and organic compounds.
- Describe the difference between chemical and nuclear reactions.
- Identify the types of nuclear reactions.
- Gain a basic understanding of our solar system.
- Become aware of the various motions of the earth.
- Gain an understanding of universal gravitation and the effects of gravity on tidal activity.
- Become aware of the forces that shaped the earth.
- Describe the rock cycle.
- Distinguish between silicates and nonsilicates.
- Describe the layers of the earth.
- Describe the layers of the earth's atmosphere.
- Describe the composition of the earth's atmosphere.
- Become aware of the factors that affect the weather patterns of the earth.
- Understand the terms used to describe weather.

Required Text: Physical Science seventh edition by Bill W. Tillery

Supplementary Reading: (Will be assigned as needed)

Course Outline:

Atoms and Periodic Properties (Chapter 8)

- Atomic structure discovered
- The Bohr Model
- Electron configuration
- The Periodic Table
- Metals nonmetals and semiconductors
- Compounds and Chemical change

Chemical Bonds (Chapter 9)

- Valence electrons and ions
- Chemical bonds
- Composition of compounds

Chemical Reactions (Chapter 10)

- Chemical formulas
- Chemical equations
- Types of chemical reactions
- Information from chemical equations

Water and Solutions (Chapter 11)

- Properties of water
- Properties of water solutions
- Acids bases and salts

Organic Chemistry (Chapter 12)

- Organic compounds
- Hydrocarbons
- Petroleum
- Hydrocarbon derivatives
- Organic compounds of life

Nuclear Reactions (Chapter 13)

- Natural radioactivity
- Nuclear equations
- Types o radioactive decay
- Radiation units
- Radiation exposure

The Universe (Chapter 14)

- Stars
- The life of a star
- Galaxies
- The Milky Way

The Solar System (Chapter 15)

- Planets, Moons, and other Bodies
- Origin of the solar system

Earth in Space (chapter 16)

- Shape and size of the earth
- Motion of the earth
- Place and time
- The moon
- The Earth Moon System
- Phases of the moon

Rocks and Minerals (Chapter 17)

- Solid Earth materials
- Minerals
- Mineral forming process
- Rocks
- The rock cycle

Building Earth's Surface (Chapter 18)

- Diastrophism
- Earthquakes
- Origin of mountains

Shaping the Earth (Chapter 20)

- Weathering erosion an transportation

Geologic Time (Chapter 21)

- Fossils
- Reading Rocks
- Geologic time

The Atmosphere of Earth (Chapter 22)

- The atmosphere
- Wind
- Water and the atmosphere
- The hydrologic cycle

Weather and Climate (Chapter 23

- Clouds and precipitation
- Weather producers
- Weather forecasting
- Climate

Earth's Water (Chapter 24)

- Water and the earth
- Fresh water
- Surface water
- Ground water

Evaluation: Four tests will be given. Each test will count for 25 % of the final grade. All tests will be comprehensive.

Grading:

A = 90-100% B = 80-89% C = 70-79% D = 60-69% F = 59%-↓ I = Incomplete W = Withdraw
(See Student Handbook for complete grading scale and definitions.) Final date to drop with a W is ----------

Attendance: You are expected to attend all classes. If an absence occurs, it is the responsibility of the student to make up all work missed. I will track your attendance carefully and adhere to school policies regarding excessive absences. I will consider excuses on a case by case basis. These excuses must be submitted to me within three days of your return to school. (See Student Handbook guidelines specific to Attendance Policy.)
NOTE: One point for each unexcused absence from class will be subtracted from your final average.

Class Interruptions / Disruptions: If you are more than 5 minutes late for class or leave before I dismiss class you will be recorded as absent. Cell phones, pagers, or any electronic communication devices that could distract the class from the lesson are to be turned **off** before entering the classroom. It is your responsibility to take your education seriously. If you disrupt class in any way you will be asked to leave and not return until you have seen me privately.

Class Participation: Expected. Students must apply appropriate terms and theories to actual or simulated situations presented in class. Individual and/or group work may be assigned at anytime during class at the discretion of the instructor. If you are absent from class, you cannot participate in class discussions and or the class work assigned and your final average may suffer (see Attendance).

Tests: Knowledge will be tested using multiple-choice question/response format predominantly, however; matching, listing, True and False, and constructed response formats may also be used as deemed appropriate to course content. Pop quizzes may be expected.

Extra Credit: Extra credit assignments may be given in instances where a student has not performed well using traditional paper and pencil tests. This will be used judiciously and on an individual basis only.

Missed Exams: Making up exams is strongly discouraged. If you miss an exam you must contact me personally to make arrangements. I will adhere to the exam make-up policy in your student handbook. Make-up exams may not resemble the exam being made up and may include additional constructed response questions.

Academic Integrity: Academic dishonesty which includes cheating, copying the work of a classmate, plagiarism, or practices contradictory to honest learning will be dealt with according to school policy. Expect to receive a failing grade for work presented and referral to the appropriate administrator for further disciplinary action. This could result in a failing grade for the course, dismissal from the course, or dismissal from school.

Students with Disabilities: Fletcher Technical Community College complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. Students with documented disabling conditions who seek accommodations must make their requests known to the Disabilities Coordinator at the beginning of each semester. If an Accommodation Plan is written, I will be more than happy to try to meet your needs in class.

Transfer of Course Credit: General education courses that are listed on the Louisiana Board of Regents' *Statewide Student Transfer Guide and Articulation Matrix* are transferable to other public four-year universities and two-year colleges in the state of Louisiana. This publication is available for use at the Board of Regents' website at www.regents.state.la.us . Courses taught by instructors holding a master's degree may be transferable. Student(s) should check with the receiving institution concerning these courses.